7. (currently amended) A method of generating an ultrasound image, comprising:

repetitively transmitting ultrasound into a region of interest;

receiving ultrasound echo signals resulting from each of the transmissions;

sampling the ultrasound echo signals to provide echo signal samples;

creating a plurality of ultrasound image frames using a preliminary value for a frame rate at which the ultrasound image frames will be created and a preliminary value for the number of transmissions over which the echo signal samples are to be averaged to create the ultrasound image frames;

analyzing the ultrasound image frames or the manner in which the ultrasound image frames were created using the preliminary values, wherein analyzing comprises analyzing the ultrasound image frames that were created using the preliminary values to determine the frame-to-frame changes corresponding to movement of imaged physiological structures;

based on the analysis, determining a final value for the frame rate and a final value for the number of transmissions over which the echo signal samples are to be averaged to create the ultrasound image frames;

creating ultrasound image frames using the final value for the frame rate and the final value for the number of transmissions over which the echo signal samples are to be averaged to create the ultrasound image frames; and

displaying an ultrasound image using the created ultrasound image frames.

8. (canceled)

9. (currently amended) The method of claim 7 wherein the act of analyzing the ultrasound image frames or the manner in which the ultrasound image frames were created further comprises determining the depth to which physiological structures in the region of interest will be imaged.

10. (currently amended) The method of claim 7 wherein the act of analyzing the ultrasound image frames or the manner in which the ultrasound image frames were created further comprises determining a narrower sector for image frames.

11. (currently amended) An ultrasound diagnostic imaging system, comprising:

an ultrasound scanhead including an array transducer;

an ultrasound transmitter coupled to the array transducer in the scanhead to apply transmit signals to the array transducer;

a controller coupled to the transmitter, the controller being operable to trigger the ultrasound transmitter to repetitively apply transmit signals to the array transducer thereby causing the array transducer in the scan head to transmit ultrasound into a region of interest, the controller further receiving a minimum value of a first operating parameter from a user control, the first operating parameter being a minimum acceptable frame rate FR_{MIN} at which the image frames are to be created, the controller further determining a value for a second operating parameter that is different from the first operating parameter based on ~~a~~ the minimum value FR_{MIN} of the first operating parameter, the second operating parameter being the number of transmissions over which the echo signal samples are to be averaged to create the ultrasound image frames or the frame rate at which the image frames are to be created;

a beamformer coupled to the controller and to the array transducer in the scanhead to receiving ultrasound echo signals resulting from each of the transmissions and form the received ultrasound echo signals into beams;

a processor coupled to the beamformer, the processor being operable to create ultrasound image frames using the minimum value FR_{MIN} of the first operating parameter and the determined value of the second operating parameter; and

a display coupled to the processor, the processor being operable to display an ultrasound image using the created ultrasound image frames.

12. (currently amended) The ultrasound diagnostic imaging system of claim 11, further comprising a user interface coupled to the controller, the user interface being operable to allow a user to enter ~~a~~ the minimum value FR_{MIN} of the first operating parameter.

13. (currently amended) The ultrasound diagnostic imaging system of claim 12 wherein the minimum value FR_{MIN} of the first operating parameter entered into the user interface comprises a minimum value for the ultrasound frame rate.

14. (currently amended) The ultrasound diagnostic imaging system of claim 13 wherein the controller is operable to determine a value N for the number of transmissions over which the echo signal samples are to be averaged based on the formula $N = FR_{MAX}/FR_{MIN}$, where FR_{MAX} is the maximum frame rate that can be achieved without averaging the echo signal samples over multiple transmissions, and FR_{MIN} is the set minimum value for the ultrasound frame rate.

15. (currently amended) The ultrasound diagnostic imaging system of claim 11, further comprising a user interface coupled to the controller, the user interface being further operable to allow a user to enter an estimate of the rate of movement of physiological structures in the region of interest, and wherein the controller is further operable to set the minimum value for the ultrasound frame rate as a function of the estimated rate of movement of the physiological structures.

16. (currently amended) The ultrasound diagnostic imaging system of claim 11, further comprising a user interface coupled to the controller, the user interface being further operable to allow a user to enter information about a type of ultrasound examination that will be conducted.

17. (currently amended) The ultrasound diagnostic imaging system of claim 16 wherein the controller is operable to set the minimum value FR_{MIN} for the ultrasound frame rate as a function of the type of ultrasound examination that will be conducted.

18. (original) The ultrasound diagnostic imaging system of claim 11, further comprising a user interface coupled to the controller, the user interface being operable to allow a user to enter an estimate of the depth to which physiological structures in the region of interest will be imaged, and wherein the controller is operable to set the minimum value for the number of transmissions over which the echo signal samples are to be averaged as a function of the estimated depth to which physiological structures in the region of interest will be imaged.